
Overweight and Obesity

OVERWEIGHT

Definition: Overweight is defined as respondents who report having a Body Mass Index (BMI) of 25.0 or above. Body Mass Index (BMI) is calculated by taking a person's body weight in pounds divided by his or her height in inches divided by height in inches (again) times 703 (i.e., $((wt/ht)/ht \times 703)$).

Prevalence of Overweight

- South Dakota 60.1%
- All participants nationwide 59.4%

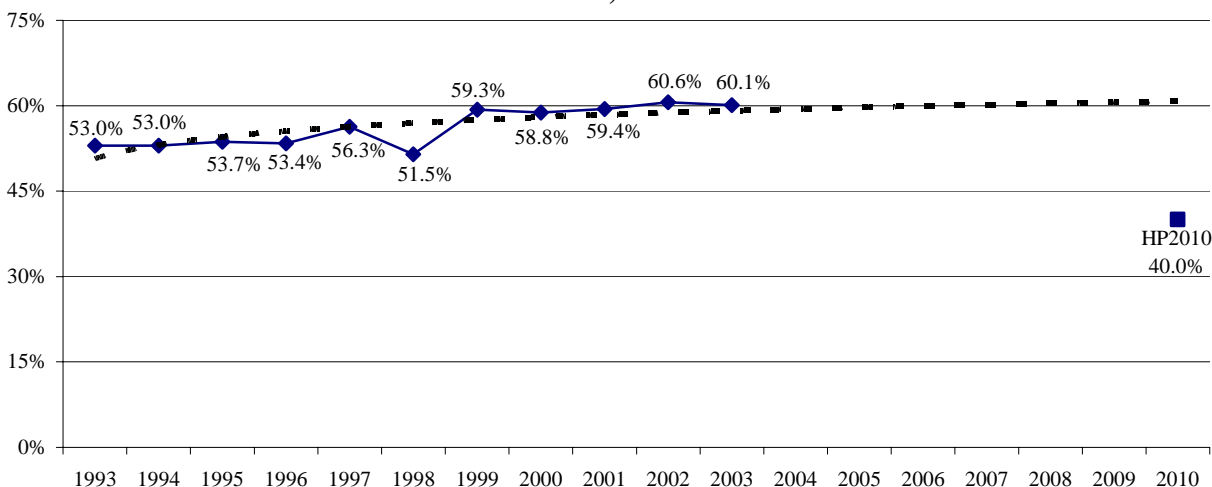
Healthy People 2010 Objective

Reduce the proportion of adults aged 20 years and older who are not at a healthy weight to 40 percent.

Trend Analysis

Overall, the percent of respondents who are overweight has been increasing since the question was first asked in 1993. South Dakota has not met the *Health People 2010 Objective* of 40 percent.

Figure 2
Percent of Respondents Who Are Overweight Based on Body Mass Index, 1993-2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 1993-2003

Demographics

Gender A significantly higher percentage of males are overweight than females. Furthermore, males are higher than females in many demographic groups between the two.

Age	The overweight population takes a large increase with the 25-34 year olds and again with the 35-44 year olds, but then drops off for the 75 and older population. Males show the most notable increase with the 35-44 year olds while females show this with the 25-34 year olds. Males also show a much larger drop in the 75 and older population than do females.
Race	American Indians report a significantly higher prevalence of overweight than do whites. This difference holds true for females, but not for males.
Region	The northeast, central, and American Indian counties regions all show a much higher percentage of those overweight than the west region which has the lowest percent overweight. These same differences are shown with females, but males do not show the same defined differences among regions.
Household Income	Overweight status does not seem to change with differences in household income with the exception of females who show a large decrease in overweight status when the household income rises to \$75,000 and over.
Education	Overweight status does not seem to change with differences in education levels.
Employment Status	Those that are self-employed show a significantly higher prevalence for overweight than those who are employed for wages.
Marital Status	Those who have never been married show a much lower prevalence of overweight than the other marital status groups.

Table 6
Respondents Who Are Overweight, 2003

	Total			Male			Female		
	# Resp.	%	95% CI	# Resp.	%	95% CI	# Resp.	%	95% CI
Total	5,049	60.1	(58.5-61.8)	2,181	67.7	(65.3-70.1)	2,868	52.4	(50.3-54.6)
Age									
18-24	349	38.6	(32.8-44.8)	167	46.3	(37.5-55.3)	182	30.1	(23.4-37.8)
25-34	637	54.6	(50.2-59.0)	271	60.7	(53.9-67.2)	366	47.9	(42.4-53.5)
35-44	955	64.2	(60.8-67.5)	434	73.7	(68.8-78.1)	521	54.0	(49.3-58.7)
45-54	980	67.1	(63.7-70.3)	465	73.9	(69.2-78.1)	515	59.5	(54.6-64.3)
55-64	764	73.0	(69.5-76.2)	334	82.5	(77.8-86.3)	430	63.0	(57.8-67.8)
65-74	659	70.5	(66.5-74.3)	272	77.8	(71.6-82.9)	387	63.7	(58.2-68.8)
75+	689	56.6	(52.4-60.6)	232	61.5	(54.5-68.2)	457	53.4	(48.4-58.4)
Race									
White	4,604	59.6	(57.8-61.3)	2,005	67.5	(64.9-69.9)	2,599	51.4	(49.1-53.7)
American Indian	275	77.0	(70.3-82.6)	103	78.4	(66.1-87.1)	172	76.0	(67.8-82.6)
Region									
Southeast	1,237	59.1	(55.8-62.3)	542	68.1	(63.3-72.6)	695	49.4	(45.1-53.7)
Northeast	1,388	63.2	(60.2-66.1)	587	69.3	(64.8-73.5)	801	57.3	(53.3-61.2)
Central	648	64.0	(59.6-68.2)	277	69.4	(62.6-75.5)	371	59.0	(53.2-64.7)
West	1,397	55.1	(52.1-58.2)	618	64.2	(59.6-68.6)	779	45.6	(41.7-49.6)
American Indian Counties	379	67.6	(61.7-73.0)	157	70.6	(61.5-78.3)	222	64.8	(57.0-71.9)
Household Income									
Less than \$15,000	566	55.2	(49.8-60.5)	193	57.7	(48.3-66.5)	373	53.5	(47.1-59.8)
\$15,000-\$19,999	438	62.7	(56.8-68.3)	154	65.0	(55.0-73.8)	284	61.1	(53.7-68.1)
\$20,000-\$24,999	575	58.3	(53.2-63.2)	254	67.1	(59.6-73.8)	321	48.2	(41.7-54.8)
\$25,000-\$34,999	815	61.9	(57.6-66.1)	354	70.6	(64.2-76.2)	461	53.8	(48.2-59.4)
\$35,000-\$49,999	897	62.5	(58.8-66.1)	418	68.2	(62.7-73.3)	479	56.1	(51.0-61.0)
\$50,000-\$74,999	736	63.4	(59.2-67.4)	355	69.4	(63.3-74.8)	381	56.1	(50.4-61.7)
\$75,000+	557	63.1	(58.5-67.5)	316	76.8	(71.0-81.7)	241	40.9	(34.3-47.9)

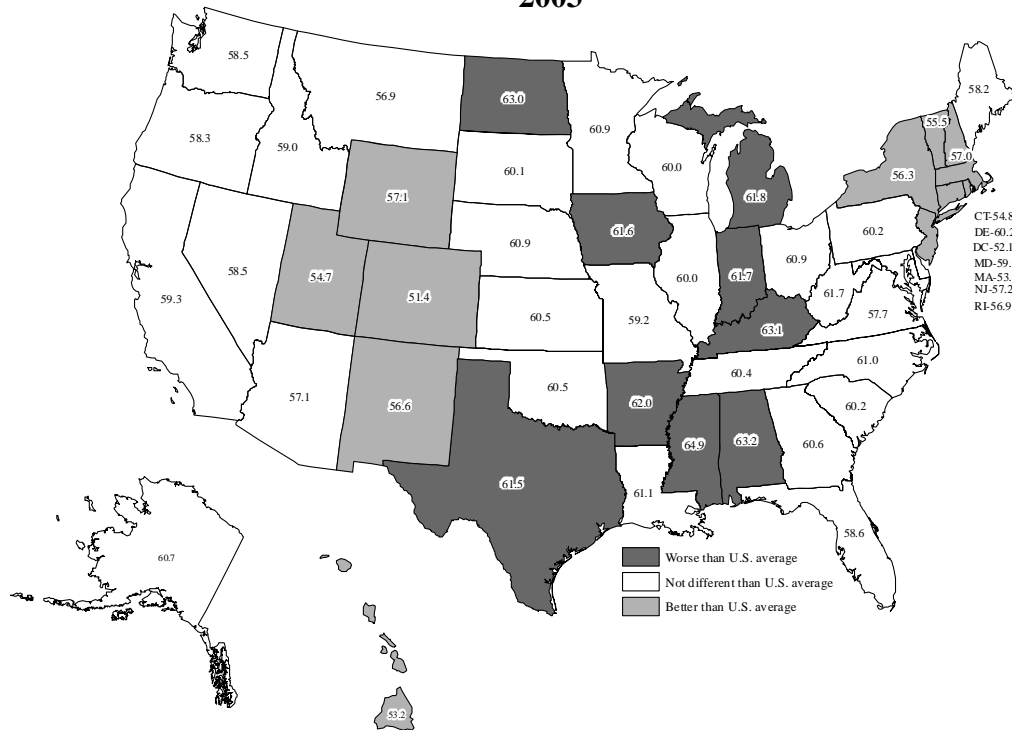
	Total			Male			Female		
	# Resp.	%	95% CI	# Resp.	%	95% CI	# Resp.	%	95% CI
<u>Education</u>									
Less than High School	535	58.8	(53.3-64.2)	256	66.3	(58.5-73.3)	279	49.9	(42.3-57.4)
High School or G.E.D.	1,681	60.9	(58.0-63.7)	761	67.4	(63.2-71.4)	920	53.6	(49.8-57.5)
Some Post-High School	1,476	59.2	(56.0-62.3)	566	66.9	(61.8-71.6)	910	52.7	(48.7-56.5)
College Graduate	1,349	61.1	(58.0-64.1)	594	70.3	(65.8-74.4)	755	51.6	(47.5-55.6)
<u>Employment Status</u>									
Employed for Wages	2,643	59.6	(57.3-61.9)	1,144	66.5	(63.1-69.8)	1,499	52.3	(49.3-55.3)
Self-employed	647	67.8	(63.4-71.8)	445	72.1	(67.0-76.7)	202	55.8	(47.9-63.4)
Unemployed	108	60.7	(48.5-71.6)	*	*	*	*	*	*
Homemaker	232	51.3	(44.0-58.5)	*	*	*	*	*	*
Retired	1,204	63.1	(60.0-66.1)	449	71.4	(66.6-75.8)	755	56.6	(52.7-60.5)
Unable to Work	119	64.3	(53.4-73.9)	*	*	*	*	*	*
<u>Marital Status</u>									
Married/Unmarried Couple	2,997	63.9	(61.9-65.8)	1,391	72.7	(70.0-75.3)	1,606	54.3	(51.5-57.0)
Divorced/Separated	667	62.1	(57.8-66.2)	271	67.3	(60.6-73.3)	396	58.2	(52.5-63.6)
Widowed	689	57.5	(53.4-61.5)	120	65.1	(54.9-74.0)	569	55.9	(51.4-60.3)
Never Married	695	46.6	(41.7-51.7)	399	52.8	(46.1-59.3)	296	36.6	(30.0-43.7)

Note: *Results based on sample sizes less than 100 have been suppressed.

National Statistics

The national percent for respondents who are overweight was 59.4 percent. South Dakota was not significantly different from the United States. Colorado had the lowest percent of respondents who were overweight with 51.4 percent, while Mississippi had the highest percent of respondents who are overweight with 64.9 percent.

Figure 3
Nationally, Respondents Who Are Overweight Based on Body Mass Index,
2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2003

Further Analysis

Following are data illustrating the percent of those who are overweight for various health behaviors and conditions. For example, 81 percent of respondents who have diabetes are overweight, while 58.6 percent of respondents who do not have diabetes are overweight.

Table 7 Overweight for Selected Health Behaviors and Conditions, 2003			
Health Behavior or Condition	# Respondents	% Overweight	95% CI
Fair or Poor Health Status	761	66.6	62.4-70.6
Excellent, Very Good, or Good Health Status	4,279	59.2	57.4-61.0
No Leisure Time Physical Activity	1,211	66.3	62.9-69.5
Leisure Time Physical Activity	3,836	58.5	56.6-60.4
No Moderate Physical Activity	2,723	62.6	60.3-64.8
Moderate Physical Activity	2,181	57.6	55.0-60.1
No Vigorous Physical Activity	4,028	61.3	59.5-63.1
Vigorous Physical Activity	954	56.3	52.4-60.2
Not Doing Anything to Control Weight	1,390	40.2	37.2-43.3
Trying to Lose or Maintain Weight	3,652	68.1	66.2-70.0
Less Than Five Servings of Fruits and Vegetables	4,032	61.0	59.2-62.9
At Least Five Servings of Fruits and Vegetables	1,017	56.3	52.6-59.9
Current Smoker	1,108	51.7	48.0-55.3
Former Smoker	1,397	69.6	66.7-72.2
Never Smoked	2,537	59.3	56.9-61.6
Smokeless Tobacco Use	290	66.3	59.1-72.8
No Smokeless Tobacco Use	4,688	59.7	58.0-61.4
Drank Alcohol in Past 30 Days	2,931	59.9	57.7-62.0
No Alcohol in Past 30 Days	2,104	60.5	57.9-63.1
Binge Drinker	779	62.9	58.6-67.0
Not a Binge Drinker	4,242	59.4	57.6-61.2
Heavy Drinker	191	58.5	49.4-67.1
Not a Heavy Drinker	4,828	60.2	58.5-61.8
Hypertension	1,483	77.8	75.3-80.1
No Hypertension	3,561	54.4	52.4-56.4
High Blood Cholesterol	1,337	74.9	72.2-77.4
No High Blood Cholesterol	2,595	59.7	57.5-61.9
No Mammogram within Past Two Years (40+)	466	55.8	50.7-60.8
Mammogram within Past Two Years (40+)	1,589	59.8	57.1-62.5
Insufficient Cervical Cancer Screening	301	47.8	40.7-55.1
Sufficient Cervical Cancer Screening	1,794	49.9	47.2-52.6
No Health Insurance (18-64)	353	54.3	47.7-60.7
Health Insurance (18-64)	3,261	60.3	58.3-62.4
Employer Based Health Insurance Coverage (18-64)	2,282	60.7	58.3-63.1
Private Plan (18-64)	497	56.5	51.2-61.6
Medicaid or Medical Assistance (18-64)	111	59.3	47.2-70.3
The Military, CHAMPUS, TriCare, or the VA (18-64)	127	59.7	49.4-69.2
Indian Health Service (18-64)	142	71.4	60.6-80.2
No Flu Shot (65+)	313	57.9	51.7-63.9
Flu Shot (65+)	1,034	64.3	61.0-67.5
No Pneumonia Shot (65+)	478	60.1	55.2-64.8
Pneumonia Shot (65+)	846	64.4	60.7-68.0
Diabetes	432	81.0	76.1-85.1
No Diabetes	4,615	58.6	56.8-60.3

Table 7 (continued) Overweight for Selected Health Behaviors and Conditions, 2003			
Health Behavior or Condition	# Respondents	% Overweight	95% CI
Current Asthma	352	63.2	56.3-69.6
Former Asthma	140	53.9	43.5-64.0
Never Had Asthma	4,541	60.2	58.4-61.9
Arthritis	1,700	67.7	65.0-70.3
No Arthritis	3,321	57.2	55.1-59.2
Arthritis - Activities Limited	801	69.6	65.4-73.4
No Arthritis - Activities Limited	4,210	58.8	57.0-60.6
Disability - Activities Limited	1,083	68.3	64.7-71.6
No Disability - Activities Limited	3,941	58.3	56.4-60.2
Disability with Special Equipment Needed	357	64.1	57.5-70.2
No Disability with Special Equipment Needed	4,670	59.9	58.2-61.6
Injured in a Fall (45+)	172	66.7	58.5-74.0
Not Injured in a Fall (45+)	2,922	66.9	64.9-68.7
Sunburn in Past 12 Months	1,945	58.0	55.3-60.6
No Sunburn in Past 12 Months	3,084	61.9	59.8-64.0
Military Veteran	855	72.2	68.6-75.6
Not a Military Veteran	4,160	57.7	55.8-59.5

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2003

OBESITY

Definition: Obesity is defined as respondents who report having a Body Mass Index (BMI) of 30.0 or above. Body Mass Index (BMI) is calculated by taking a person's body weight in pounds divided by his or her height in inches divided by height in inches (again) times 703 (i.e., $((wt/ht)/ht \times 703)$).

Prevalence of Obesity

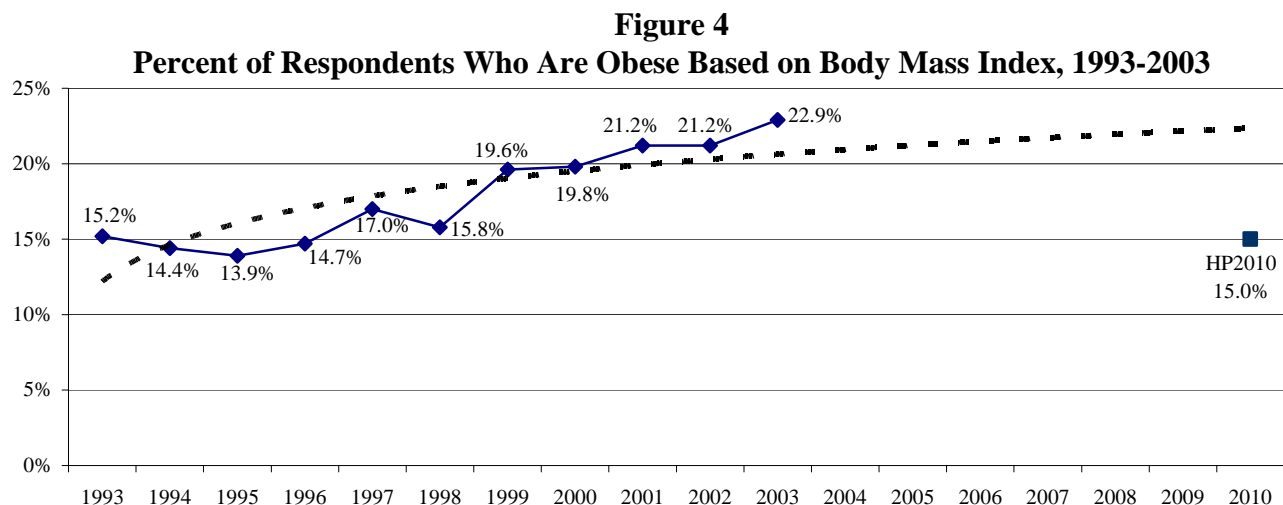
- South Dakota 22.9%
- All participants nationwide 22.8%

Healthy People 2010 Objective

Reduce the proportion of adults aged 20 years and older who are obese to 15 percent.

Trend Analysis

The percent of respondents who are obese was first asked in 1993 and has been increasing since 1998 when 15.8 percent of respondents were obese. However, South Dakota has yet to meet *Healthy People 2010 Objective* of 15 percent.



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 1993-2003

Demographics

- Gender** There were no appreciable differences in obesity between men and women overall or for any demographic group between the two.
- Age** Obesity seems to take a large increase during the 25-34 age group and a large drop in the 75 and older group. However, this decrease in obesity starts earlier for males in the 65-74 age group.
- Race** American Indians report a significantly higher prevalence of obesity than do whites.

Region	The five regions fall into three very distinct groups. The American Indian counties region is substantially higher in obesity than the other four regions and the west region is considerably lower than the other four regions. The other three are similar and fell between the very high American Indian counties region and very low west region.
Household Income	Obesity does not seem to change with differences in household income.
Education	Differences in education levels do not seem to impact obesity.
Employment Status	Obesity does not seem to change with employment status.
Marital Status	The only appreciable difference in obesity is that those who are divorced show a higher prevalence than those who have never been married.

Table 8
Respondents Who Are Obese, 2003

	Total			Male			Female		
	# Resp.	%	95% CI	# Resp.	%	95% CI	# Resp.	%	95% CI
Total	5,049	22.9	(21.5-24.2)	2,181	23.7	(21.8-25.9)	2,868	22.0	(20.3-23.7)
Age									
18-24	349	13.8	(10.4-18.2)	167	15.1	(10.1-22.0)	182	12.4	(8.2-18.3)
25-34	637	22.0	(18.6-25.8)	271	23.4	(18.3-29.3)	366	20.4	(16.3-25.3)
35-44	955	24.5	(21.6-27.7)	434	26.8	(22.4-31.6)	521	22.1	(18.4-26.4)
45-54	980	25.8	(22.9-29.0)	465	25.7	(21.6-30.3)	515	26.0	(22.0-30.4)
55-64	764	31.5	(27.9-35.3)	334	35.1	(29.7-40.9)	430	27.7	(23.3-32.6)
65-74	659	25.9	(22.4-29.8)	272	23.5	(18.4-29.5)	387	28.3	(23.6-33.5)
75+	689	16.6	(13.8-19.9)	232	12.6	(8.6-18.1)	457	19.1	(15.5-23.4)
Race									
White	4,604	22.0	(20.7-23.4)	2,005	23.1	(21.0-25.2)	2,599	21.0	(19.3-22.8)
American Indian	275	40.6	(33.7-47.9)	103	41.9	(30.8-53.9)	172	39.5	(31.1-48.6)
Region									
Southeast	1,237	22.0	(19.6-24.7)	542	22.9	(19.2-27.0)	695	21.1	(18.0-24.5)
Northeast	1,388	25.4	(23.0-28.1)	587	27.5	(23.7-31.6)	801	23.5	(20.4-26.9)
Central	648	26.4	(22.8-30.4)	277	25.5	(20.3-31.6)	371	27.2	(22.5-32.5)
West	1,397	17.0	(14.9-19.3)	618	18.0	(14.9-21.6)	779	16.0	(13.3-19.0)
American Indian Counties	379	36.5	(30.8-42.6)	157	37.1	(28.5-46.6)	222	35.9	(28.7-43.8)
Household Income									
Less than \$15,000	566	24.5	(20.6-28.8)	193	20.0	(14.4-27.2)	373	27.7	(22.6-33.3)
\$15,000-\$19,999	438	30.1	(25.0-35.9)	154	30.9	(22.1-41.3)	284	29.6	(23.7-36.2)
\$20,000-\$24,999	575	24.9	(20.9-29.3)	254	27.0	(21.1-33.9)	321	22.4	(17.7-28.1)
\$25,000-\$34,999	815	22.0	(18.9-25.4)	354	20.4	(16.2-25.5)	461	23.5	(19.3-28.2)
\$35,000-\$49,999	897	23.7	(20.7-26.9)	418	23.3	(19.1-28.1)	479	24.0	(20.1-28.5)
\$50,000-\$74,999	736	24.1	(20.8-27.7)	355	26.9	(22.1-32.3)	381	20.5	(16.5-25.3)
\$75,000+	557	18.9	(15.5-22.8)	316	21.5	(17.0-26.9)	241	14.6	(10.2-20.4)
Education									
Less than High School	535	26.7	(22.6-31.3)	256	25.6	(20.0-32.1)	279	28.0	(22.2-34.6)
High School or G.E.D.	1,681	24.2	(21.9-26.6)	761	26.4	(23.0-30.1)	920	21.8	(19.0-24.9)
Some Post-High School	1,476	21.5	(19.2-24.1)	566	21.9	(18.2-26.2)	910	21.2	(18.4-24.4)
College Graduate	1,349	21.3	(18.9-23.9)	594	21.6	(18.1-25.6)	755	20.9	(17.7-24.5)
Employment Status									
Employed for Wages	2,643	23.8	(22.0-25.7)	1,144	25.3	(22.5-28.2)	1,499	22.2	(19.9-24.7)
Self-employed	647	23.6	(20.1-27.5)	445	23.6	(19.4-28.4)	202	23.6	(17.7-30.6)
Unemployed	108	26.8	(18.0-37.8)	*	*	*	*	*	*
Homemaker	232	23.9	(18.3-30.4)	*	*	*	*	*	*
Retired	1,204	20.5	(18.2-23.2)	449	19.3	(15.6-23.5)	755	21.5	(18.5-24.9)
Unable to Work	119	31.7	(23.1-41.8)	*	*	*	*	*	*

Table 8 (continued)									
Respondents Who Are Obese, 2003									
	Total			Male			Female		
	# Resp.	%	95% CI	# Resp.	%	95% CI	# Resp.	%	95% CI
Marital Status									
Married/Unmarried Couple	2,997	23.5	(21.9-25.3)	1,391	25.3	(22.9-27.9)	1,606	21.6	(19.5-23.9)
Divorced/Separated	667	26.4	(22.7-30.4)	271	26.0	(20.5-32.4)	396	26.6	(21.9-31.9)
Widowed	689	23.3	(20.0-27.0)	120	17.6	(11.5-26.0)	569	24.5	(20.8-28.6)
Never Married	695	18.5	(15.3-22.1)	399	18.9	(14.7-23.9)	296	17.8	(13.4-23.2)

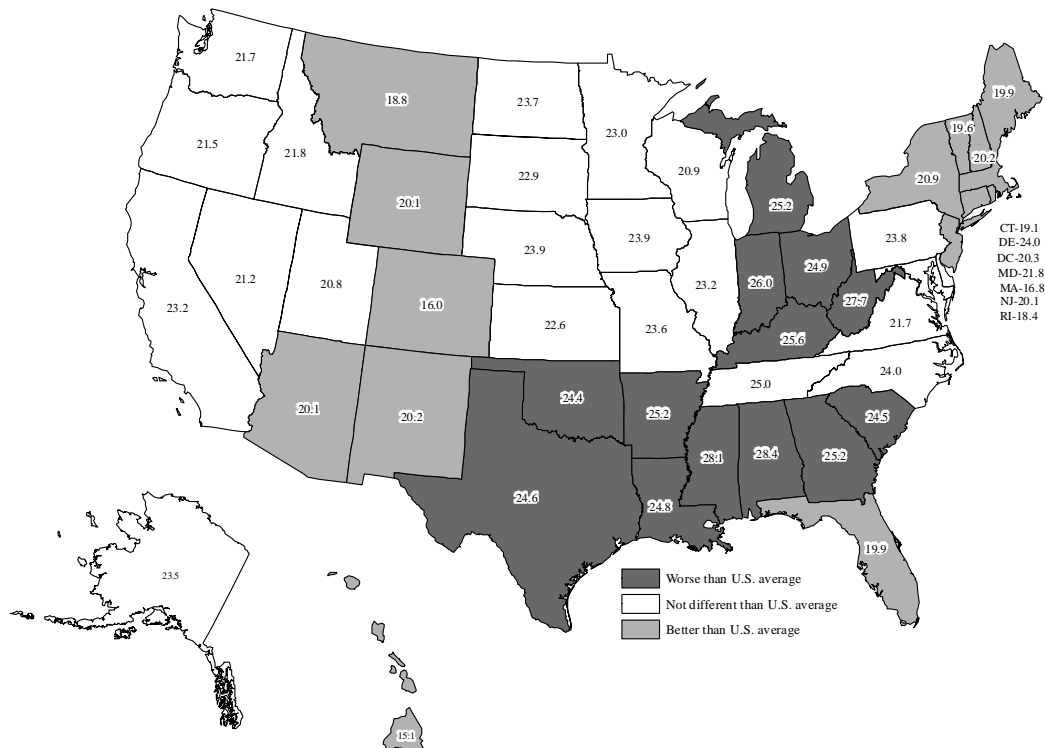
Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2003

Note: *Results based on sample sizes less than 100 have been suppressed.

National Statistics

The national percent of respondents who are obese was 22.8 percent. South Dakota was not significantly different from the United States. Hawaii had the lowest percent of respondents who were obese with 15.1 percent, while Alabama had the highest percent of respondents who are obese with 28.4 percent.

Figure 5
Nationally, Respondents Who Are Obese, 2003



Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2003

Further Analysis

Following are data illustrating the percent of those who are obese for various health behaviors and conditions. For example, 36.2 percent of respondents who are hypertensive are obese, while 18.5 percent of respondents who are not hypertensive are obese.

Table 9
Obese Status for Selected Health Behaviors and Conditions, 2003

Health Behavior or Condition	# Respondents	% Obese	95% CI
Fair or Poor Health Status	761	33.5	29.7-37.5
Excellent, Very Good, or Good Health Status	4,279	21.3	19.9-22.7
No Leisure Time Physical Activity	1,211	32.9	29.8-36.0
Leisure Time Physical Activity	3,836	20.1	18.7-21.6
No Moderate Physical Activity	2,723	25.6	23.8-27.6
Moderate Physical Activity	2,181	19.9	18.0-21.9
No Vigorous Physical Activity	4,028	24.0	22.5-25.6
Vigorous Physical Activity	954	19.0	16.2-22.1
Not Doing Anything to Control Weight	1,390	11.3	9.4-13.5
Trying to Lose or Maintain Weight	3,652	27.5	25.9-29.2
Less Than Five Servings of Fruits and Vegetables	4,032	23.4	22.0-25.0
At Least Five Servings of Fruits and Vegetables	1,017	20.3	17.7-23.2
Current Smoker	1,108	18.1	15.6-20.8
Former Smoker	1,397	27.7	25.1-30.4
Never Smoked	2,537	22.7	20.8-24.6
Smokeless Tobacco Use	290	22.9	17.9-28.8
No Smokeless Tobacco Use	4,688	23.0	21.6-24.4
Drank Alcohol in Past 30 Days	2,931	20.7	19.1-22.4
No Alcohol in Past 30 Days	2,104	26.3	24.2-28.6
Binge Drinker	779	22.2	19.1-25.7
Not a Binge Drinker	4,242	22.9	21.5-24.4
Heavy Drinker	191	23.9	17.9-31.2
Not a Heavy Drinker	4,828	22.8	21.5-24.2
Hypertension	1,483	36.2	33.5-39.1
No Hypertension	3,561	18.5	17.1-20.0
High Blood Cholesterol	1,337	27.8	25.1-30.5
No High Blood Cholesterol	2,595	23.2	21.4-25.1
No Mammogram within Past Two Years (40+)	466	24.8	20.6-29.5
Mammogram within Past Two Years (40+)	1,589	24.7	22.4-27.1
Insufficient Cervical Cancer Screening	301	19.6	15.0-25.3
Sufficient Cervical Cancer Screening	1,794	20.7	18.6-22.8
No Health Insurance (18-64)	353	20.0	15.6-25.3
Health Insurance (18-64)	3,261	23.9	22.3-25.6
Employer Based Health Insurance Coverage (18-64)	2,282	23.5	21.6-25.6
Private Plan (18-64)	497	19.5	15.9-23.6
Medicaid or Medical Assistance (18-64)	111	32.5	23.1-43.5
The Military, CHAMPUS, TriCare, or the VA (18-64)	127	25.8	18.3-35.0
Indian Health Service (18-64)	142	35.0	26.2-44.9
No Flu Shot (65+)	313	19.2	14.8-24.6
Flu Shot (65+)	1,034	21.3	18.7-24.1
No Pneumonia Shot (65+)	478	19.5	15.8-23.8
Pneumonia Shot (65+)	846	21.8	18.9-24.9
Diabetes	432	46.0	40.7-51.3
No Diabetes	4,615	21.1	19.8-22.5
Current Asthma	352	29.8	24.2-36.0
Former Asthma	140	15.5	10.4-22.6
Never Had Asthma	4,541	22.6	21.2-24.0
Arthritis	1,700	29.8	27.4-32.3
No Arthritis	3,321	20.1	18.6-21.8
Arthritis - Activities Limited	801	35.5	31.8-39.4
No Arthritis - Activities Limited	4,210	21.0	19.6-22.5

Table 9 (continued) Obese Status for Selected Health Behaviors and Conditions, 2003			
Health Behavior or Condition	# Respondents	% Obese	95% CI
Disability - Activities Limited	1,083	31.6	28.5-35.0
No Disability - Activities Limited	3,941	20.9	19.4-22.4
Disability with Special Equipment Needed	357	35.6	30.0-41.6
No Disability with Special Equipment Needed	4,670	22.1	20.8-23.5
Injured in a Fall (45+)	172	35.9	28.4-44.1
Not Injured in a Fall (45+)	2,922	24.7	23.0-26.5
Sunburn in Past 12 Months	1,945	21.4	19.4-23.5
No Sunburn in Past 12 Months	3,084	24.0	22.3-25.8
Military Veteran	855	21.8	18.9-24.9
Not a Military Veteran	4,160	23.2	21.7-24.7

Source: The Behavioral Risk Factor Surveillance System, South Dakota Department of Health, 2003